D 4.1.2 – HARDWARE PROCUREMENT FOR MUNICIPALITY OF SPLIT

June, 2022 – Final version

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Project Acronym	E-CHAIN
Project ID Number	10048282
Project Title	Enhanced Connectivity and Harmonization of data for the Adriatic Intermodal Network
Priority Axis	4 - Maritime Transport
Specific objective	4.1 - Improve the quality, safety and environmental sustainability of marine and coastal transport services and nodes by promoting multimodality in the programme area
Work Package Number	4
Work Package Title	Platform and Service Implementation
Activity Number	4.1
Activity Title	Hardware procurement
Partner in Charge	PP8 - City of Split
Partners involved	PP8 - City of Split PP6 – Prosoft d.o.o.
Status	Final
Distribution	Public

VERSION CONTROL

Date	Version	Prepared by	Revised by	Approved by	Revision	Comment
December, 2021	draft	Rajko Badurina Marcela Đeldum	Andrea Barić		1	
June, 2022	Final		Nelida Pogačić		Final	Cover Page changed

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ACRONYMS / ABBREVIATIONS

ACRONYM	DEFINITION
PP	Project partners
PT	Project Team
TC	Technical task coordinator
WP	Work package
IT	Information Technologies

REFERENCE DOCUMENTATION

No	TITLE	REPORT No.	PUBLISHED BY
1	**Application Form – E-CHAIN - Enhanced Connectivity and Harmonisation of data for the Adriatic Intermodal Network** 2014 - 2020 Interreg V-A Italy - Croatia CBC Programme Call for proposal 2017 Standard - E-CHAIN	Application ID: 10048282	Lead Applicant: Municipality of Ancona

1. INTRODUCTION

1.1 PURPOSE OF THE DOCUMENT

This document is relevant to the activity 4.1 Hardware procurement of E-CHAIN project - Enhanced Connectivity and Harmonisation of data for the Adriatic Intermodal Network.

Three info panels with the E-CHAIN platform will be installed in the City of Split, which will offer the service of availability of harmonized data of the Adriatic Intermodal Network. The information provided in this report, together with information supplied in "Technical and non-technical requirements" (D 3.3.2), serve for hardware installation and implementation.

It is the operational document for the execution of the project being used:

- by the Activities of WP 4 Platform and Service Implementation and namely for Activity 4.2 Software development and 4.3 Integration and testing
- by the Activities of WP 5 Services and Transport Vehicle Integration in Activity 5.1 Pilot implementation for deployment definition in the Pilot Sites

1.2 WORKING PRINCIPLE

Multiple surveys of potential totem locations were conducted, which included key stakeholders in the city of Split, including entities in passenger transport and tourism, and the information services of the city of Split. On the last survey of November 24, 2021, taking into account the current situation and evaluating the fluctuation of passengers and tourists, other facilities and the availability of other information panels in the immediate vicinity, defined installation requirements and checking existing Internet connectivity on the spot, the final positions for the info-panels were determined.

The technical specifications of the info-panel are defined in accordance with the project requirements defined in WP 3, according to location conditions in terms of safety and exposure to weather conditions, and requirements to minimize maintenance costs in accordance with project sustainability rules.

Act 3.2, 3.4 Signature list of participants of the working meeting and tour of the project locations in Split, 20th August,2020

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Picture: First on site meeting, locations

2. BACKGROUND INFORMATION

E-CHAIN (Enhanced Connectivity and Harmonisation of data for the Adriatic Intermodal Network) main objective is to enhance connectivity and harmonisation of data for the Adriatic Intermodal Network, through the realisation of a modular integrated software (E-CHAIN platform) for the management of intermodal transport services in port areas for passenger transport. To enhance the current situation, E-CHAIN will focus on providing new services such as an improved Port multimodal info mobility system for the passengers, route search and booking integrated with other transport modes, an advanced touristic co-marketing tool for the operators. These services will be designed and deployed in the selected pilot sites (Ancona, Split and Venice). A Business model suited to adapt the technology developed in the three applicative contexts will be created and specific needs will be taken into account.

WP4 gathers requirements for and then defines the SW and infrastructure environment for the development & test platform, commissioning and operational host system. It will define the technical environment, use components and provide the configurations (pilot sites). Specific objectives are to:

- Develop selected services according to the specifics (technical and not) identified in WP3;

- Roll out service versions at pilot sites;
- Develop WSs to allow the integration between different services/systems for a multimodal and interoperable transportation
- Develop help-desk system to assist travellers during the trip according to their needs.
- The aim of WP4 is to design platform and services and to prepare the E-CHAIN services for deployment in the pilot sites (Ancona, Split and Venice).

3. LIST OF HARDWARE

HARDWARE	DESCRIPTION	QUANTITY
Info-panel (Totem)	Interactive outdoor pannel in antivandal housing with touch screen min dimensions 55” and multiple connectivity options	3
TOTAL QUANTITY		3

4. INFO-PANEL – HW & SW TECHNICAL SPECIFICATIONS

Totems will be located in a demanding outdoor environment exposed to atmospheric influences (strong sunlight, high temperatures, wind, rain), can be the target of vandals and are intended for intensive interactive use. The quality and robustness of the device and the outer casing must correspond to the operating conditions in order to perform its E-CHAIN project function in the long run.
It is necessary to ensure stable power supply and internet connection of sufficient bandwidth as well as a system backup.
After the installation and initial setup of the operating system, the totems will be software maintained and its contents updated online. The panels are intended for interaction with users and display of real time information, so non-stop availability is necessary.

Accordingly, the hardware and software technical specifications requirements are as follows:

Housing:

- width from 80 to 100 mm
- height from 2000 to 2200 mm
- Aluminum anti-vandal white case

- IP66 protection certificate
- Compressor air conditioning - closed system

Screen:

- 55 "diagonal or larger screen with touch function
- Resolution 1920x1080
- Screen brightness 3000 cd/m2
- Min. 8 bit color, IPS WRGB panel
- 24/7 operation, panel life 50.000 hours
- Automatic brightness control
- 8mm (4 + 4) safety glass with anti-reflective coating

Computer:

- processor 8C / 16T cores, 1.8-4.2 GHz, 4MB / 8MB cache L2 / L3, 8 graphics cores at 1750MHz,
- memory 16GB DDR4-3200 disk NVMe SSD, M.2, 256GB
- 1x HDMI, 1x mDP,
- 5x USB3.2, 2x USB type-C,
- 1x GbE 2.5 LAN, WiFi6, BT 5.2, 3G / 4G / LTE,
- Installed Operating System MS Windows 10 Professional license with kiosk mode enabled
- Google Chrome 19 or higher

Other:

- Connectivity: USB, LAN, WIFI / LTE
- Implemented access control system for info-panel space using electric locks and RFID contactless card readers
- The RFID contactless card reader must support the following features:
    - reading frequency 13.56MHz
    - Supported standard Mifare ISO 14443A compatible card
    - card reading distance 3-5 cm
- power supply 9-12 V DC
- protection min. IP66, "Anti-vandal" metal housing
- Open / closed service door condition monitoring using magnetic sensors
- Enabled centralized management and control of service space access control system via cloud web application
- Informing users about the state of the system via Email, SMS, Voice calls and mobile notifications

- Enabled monitoring of operating conditions of ICT equipment in the service area using temperature and humidity sensors with the following characteristics:
    - Measuring range: Temperature: -40 - 125 ° C, Humidity: 0 - 100% RH
    - Accuracy: measurements: Temperature: ± 0.3 ° C, Humidity: ± 3% RH
    - Display resolution: Temperature: 0.01 ° C, Humidity: 0.04% RH
- Ability to operate the system on its own battery power with autonomy min. 8 hours
- Certificates: IP66, IK10, RED, EMC, LVD, EN 62368-1: 2014, EN 62311: 2008, EN 61000-6-2: 2019, EN 61000-6-2: 2005, EN 61000-6-4: 2007 + A1: 2011, EN 61000-3-2: 2014, EN 61000-3-3: 2013, EN 300 328 V2.1.1: 2016, EN 301 489-1 V2.2.1: 2019, EN 301 489-17 V3.2.0: 2017

5. TOTEMS' INSTALLATION REQUIREMENTS (Restriction due to intermissions, security and safety in public property)

The screen of the panel must be placed in such a way that a person with an average height of approximately 175 cm can use it without hindrance, and so that snow and rain do not remain on it, since it is designated for outdoor space.

In order to ensure a harmonized visual identity of the European Regional Development Fund, Interreg IT-HR program, the panels should be delivered with the recognizable mark of the E-CHAIN project. In accordance with the branding rules of the INTERREG Italy - Croatia project, the Logo with the E-CHAIN acronym of appropriate size, but not less than 46 millimeters, engraved or on plate should be permanently marked in the area of the housing on the front of the totem.

Internet access:

- the optics terminal is provided at the panel location (distance 1 to 2 m)
- physical connection is performed via STP Cat5e cable that connects to 1 free RJ45 port switch and/or optical converter located on the optics terminal next to the panel.

Power supply:

- the 220V / 50Hz power supply is available at the panel location (distance 1 to 2 m)
- physical power supply by a power cord connected to a power source on site

Installation/construction work:

- adequate preparation of the surface with mounting base

- connection to power supply and Optics: by excavation of approx. 1-2 m of 0.5 m deep channel from the power outlet and optics to the panel itself, by laying a ticino duct into which the mains and power cables are routed; the excavation site of the canal should be returned to its original condition.

The City of Split is responsible for obtaining permits and micro-locations as well as the provision of the Internet connection and power supply.

6. INFO-PANELS PHISICAL ARCHITECTURE

Location 1: Bus station (Riva) Obala kneza Domagoja, Split

Location description: Bus station opposite the main building of Jadrolinija
Latitude: 43.5030207**, Longitude:** 16.4429695

Panel position and Installation requirements:

- One-sided panel to the left of the covered bus station
- Power supply - 220V available from the back of the bus station
- Internet Link – via fibre and optical converter available on site

Location 2. Nadbiskupija, Poljana kneza Trpimira, Split

Latitude: 43.5067592**, Longitude:** 16.4422802

Installation requirements:

- One-sided panel situated near the existing panel
- Power supply - 220V available on site
- Internet link via fibre and optical converter available on site

Location 3: Trg Franje Tuđmana, Riva, Split

Latitude 43.5084879, **Longitude** 16.4357108

Installation requirements:

- One-sided panel to the left of the covered bus station

- Power supply - 220V available from the back of the bus station
- Internet Link – via fibre and optical converter available on site